

Stokes equation and the fluid properties were set to be aqueous. The steady state velocity field in each sorting station was shown to be nearly identical.

**[0167]** FIG. 10B shows a mask layout of a prototype parallel CMACS design in which a “red” layer shows nickel magnetic field gradient generators **1051**, a dark layer showing channels **1053** in a top fluidic layer and a light layer showing channels **1055** in a bottom fluidic layer.

#### Other Embodiments

**[0168]** A number of embodiments of the invention have been described. Nevertheless, it will be understood that vari-

ous modifications may be made without departing from the spirit and scope of the invention. For example, while a continuous processing/screening mode has been described, other techniques such as batch sorting may be employed in some embodiments. Further, the above description has been focused on biological applications and in particular cell sorting, but it should also be noted that the same principles apply to other sample types, such as inorganic or non-biological organic materials. Thus, the apparatus and methods described above can also be used to sort non-biological substances. Accordingly, other embodiments are within the scope of the following claims.

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